

ABSTRACT OF THE DISCLOSURE

A method for manufacturing a semiconductor device wherein phenomenon called the skirting and dispersion in reliability of a TFT among lots can be reduced is provided by using a method for cleaning a plasma etching apparatus, a method for plasma etching, and a method for manufacturing a semiconductor device using the plasma etching method. Concretely, the plasma density may be kept constant by exciting plasma using a gas capable of etching quartz, for example, Cl_2 , or a mixed gas of Cl_2 with a fluorine-based gas such as CF_4 after using an etching gas such as BCl_3 with which BO_x adheres to the quartz surface and thus removing the BO_x adhering to the quartz surface inside the chamber (that is, cleaning is performed).

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